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IDENTIFIERS	*Crosswalks (Linking); Goal Setting

ABSTRACT

This document cross-references Colorado's consumer and family studies core curriculums in life management and relationships with Colorado's academic content standards. Colorado's academic standards for students in grades 9-12 in the areas of reading and writing, geography, science, history, and mathematics are cross-referenced with student standards for the following areas of the state's core life management and relationships curriculums: (1) utilize decision-making and problem-solving skills in seeking, selecting, and establishing professional behaviors for a specific job and/or career; (2) analyze and demonstrate an understanding of the principles of financial management as they apply to the home and family; (3) examine and evaluate resources aiding in developing personal and family goals and explore management techniques and exhibit behaviors for coordinating work and family; (4) analyze and demonstrate behaviors contributing to a healthy lifestyle; (5) demonstrate self-improvement skills by analyzing self-concept and role expressions, practicing decision-making and problem-solving skills, and creating coping strategies and support systems; (6) analyze how communication impacts relationships and personal issues; (7) evaluate the aspects of various long-term relationships and the resulting lifestyles; (8) analyze the factors involved in choosing to become a parent; and (9) examine the function and characteristics of family systems and investigate strategies for dealing with family issues. (MN)

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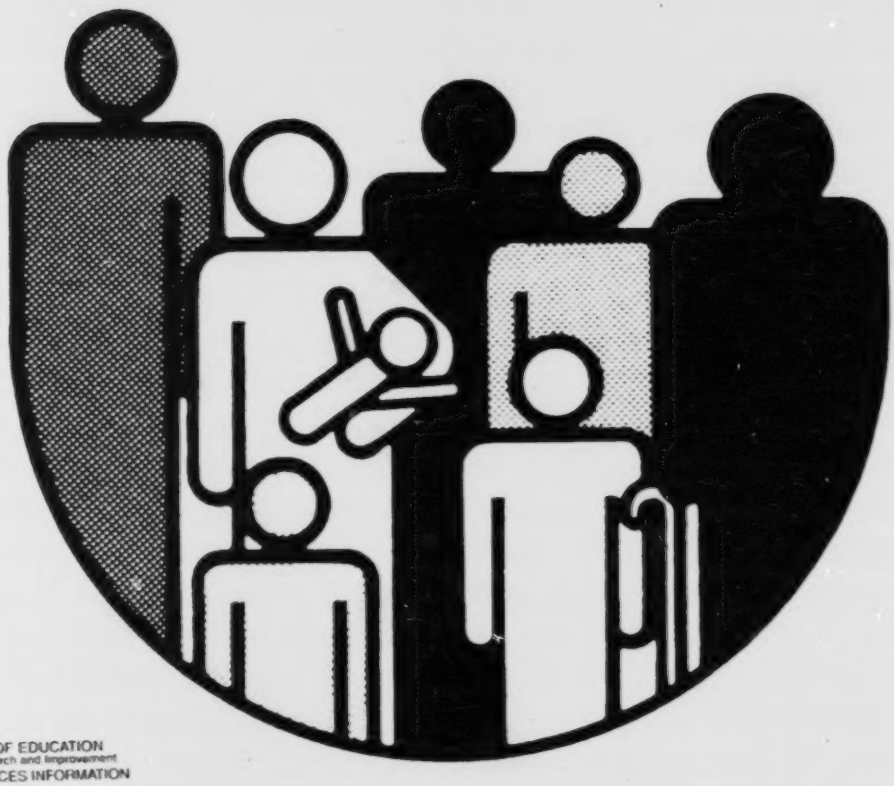
of

Life Management & Relationships Crosswalk

with the

Colorado Academic Content Standards



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CE 083 728

STATE OF COLORADO

STUDENT STANDARDS FOR LIFE MANAGEMENT CURRICULUM

1. Managing Job and Career.

Content Standard: The student will utilize decision-making and problem-solving skills as he/she seeks, selects, and establishes professional behaviors for a specific job and/or career.

1.01 Evaluate available income sources and resources.

1.02 Compare desired life style to level of education.

1.03 Examine cost factors of employment.

1.04 Evaluate career choices as they impact the family.

1.05 Assess work as a means of obtaining personal and family goals.

1.06 Assess personal characteristics related to job skills.

1.07 Examine jobs that utilize individuals' skills, aptitudes, and interests.

1.08 Demonstrate knowledge of job seeking and keeping skills.

2. Managing Finances.

Content Standard: The student will analyze and demonstrate an understanding of the principles of financial management as they apply to the home and the family.

2.01 Analyze personal values, goals, and the decision-making process in determining financial choices.

2.02 Assess factors in choosing savings, checking, and investing programs.

2.03 Provide practical skills in check-writing and balancing the checkbook.

2.04 Assess factors that promote budget success.

2.05 Demonstrate financial management principles, spending plans, savings, and investment programs to meet long-term and short-term goals.

2.06 Plan for financial security throughout the life cycle.

2.07 Compare consumer rights and responsibilities.

2.08 Analyze advertising and its effects on the consumer.

2.09 Analyze steps involved in credit decisions.

2.10 Examine the role and types of credit.

2.11 Apply consumer skills to the attainment and maintenance of transportation.

2.12	Assess how individual/family situations are related to insurance needs throughout the life cycle.
2.13	Assess factors in choosing insurance needs' services.
2.14	Assess how individual/family situations are related to alternative housing decisions.
2.15	Assess housing based on life cycle stages.
2.16	Evaluate relationship of income to housing decisions.
2.17	Plan for furnishing and maintaining a living environment within economic means.
2.18	Evaluate home management and maintenance needs.
2.19	Examine factors that affect clothing decisions.
2.20	Assess care needs of the wardrobe.

3. Managing Personal/Family Resources.

Content Standards: The student will examine and evaluate the resources which aid in developing personal and family goals. (1)

The student will explore management techniques and exhibit behaviors for coordinating work and family. (2)

3.01	Assess use of personal time.
3.02	Apply principles of effective time management.
3.03	Manage resources to provide for leisure time.
3.04	Examine personal values in understanding self.
3.05	Formulate personal goals as an individual.
3.06	Evaluate the influence of self-concept on future goals.
3.07	Apply the process of decision-making.
3.08	Demonstrate personal decision-making.
3.09	Evaluate decision-making as it relates to management of time, money, and activities in combination with work.
3.10	Evaluate available community agencies as resources.
3.11	Evaluate opportunities for community service.
3.12	Evaluate commitment to community services/agencies.
3.13	Analyze the multiple responsibilities of wage earners and homemakers.
3.14	Establish management techniques for coordinating work and family.

3.15 Plan for shared responsibilities and flexibility in meeting needs of family members and changing family dynamics.

4. Managing Individual and Family Wellness.

Content Standard: The student will analyze and demonstrate behaviors which contribute to a healthy lifestyle.

4.01 Evaluate individual/family nutrient needs.

4.02 Assess the nutritional needs of special groups and persons in different stages of the life cycle.

4.03 Demonstrate ability to prepare nutritionally balanced meals that will provide the best value for the food dollar.

4.04 Evaluate recipes for ease and speed of preparation.

4.05 Evaluate nutrition information labels on food products.

4.06 Analyze alternative ways of meeting nutritional needs.

4.07 Maintain balance between personal/family wellness.

4.08 Assess the benefits of physical exercise.

4.09 Maintain preventative health practices.

COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 1: STUDENTS READ AND UNDERSTAND A VARIETY OF MATERIALS.

In order to meet this standard, students will...

R = 1.01 - 1.07, 2.02, 2.04, 2.07 - 2.08, 2.10 - 2.17, 3.13, 4.01 - 4.08.

1.1 use comprehension skills such as previewing, predicting, inferring, comparing and contrasting, re-reading and self-monitoring, summarizing, identifying the author's purpose, determining the main idea, and applying knowledge of foreshadowing, metaphor, simile, symbolism, and other figures of speech.

R = 2.14 - 2.18, 3.05 - 3.06, 4.07 - 4.09

1.2 make connections between their reading and what they already know, and identify what they need to know about a topic before reading about it. **4.01,**

R = 1.02, 1.04, 1.07, 2.01 - 2.02, 2.04 - 2.05, 2.06 - 2.10, 2.12 - 2.13, 3.10 - 3.12, 3.14 - 3.15, 4.01 - 4.02, 4.06, 4.09

1.3 adjust reading strategies for different purposes such as reading carefully, idea by idea; skimming and scanning; fitting materials into an organizational pattern, such as reading a novel chronologically; finding information to support particular ideas; finding the sequence of steps in a technical publication; and using a full range of strategies to comprehend essays, speeches, autobiographies, and first-person historical documents in addition to the above-mentioned types of literature.

I = 1.04 - 1.07, 2.01 - 2.05, 2.07, 2.10, 2.12 - 2.13, 3.15, 4.01 - 4.02, 4.05, 4.09

1.4 use word recognition skills and resources such as phonics, context clues, picture clues, word origins, and word order clues; reference guides; roots, prefixes, and suffixes of words for comprehension; and

R = 2.05

1.5 use information from their reading to increase vocabulary and enhance language usage.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Reading and Writing including Grades 9 - 12 Competencies
	STANDARD 2: STUDENTS WRITE AND SPEAK FOR A VARIETY OF PURPOSES AND AUDIENCES.
	In order to meet this standard, students will...
R = 2.03, 2.09	**2.1** write and speak for a variety of purposes such as telling stories, presenting analytical responses to literature, conveying technical information, explaining concepts and procedures, persuading, and using fictional, dramatic, and poetic techniques in writing while incorporating material from a wider range of sources (e.g., newspapers, magazines, technical publications, books) in their writing and speaking;
R = 1.02 - 1.08, 2.01 - 2.02, 2.04 - 2.20, 3.10 - 3.15, 4.01 - 4.06	**2.2** write and speak for audiences such as peers, teachers, and the community, and support an opinion using various forms of persuasion (factual or emotional) and experimenting with stylistic elements such as voice, tone, and style in writing and speaking;
R = 2.04 - 2.05, 3.04 - 3.09, 4.07 - 4.09	**2.3** plan, draft, revise, proofread, and edit written communications, conveying technical information in a written form appropriate to the audience;
R = 1.07 - 1.08, 2.01 - 2.06, 2.09 - 2.10, 2.12 - 2.13, 3.07 - 3.09, 3.15, 4.01 - 4.02, 4.05, 4.09	**2.4** use a variety of devices such as figurative language, symbolism, dialect, and precise vocabulary to convey meaning in various specialized fields (e.g., scientific, technical, business communications);
R = 1.01 - 1.07, 2.01 - 2.02, 2.05, 2.07, 2.11 - 2.16, 3.06, 4.03 - 4.04, 4.06	**2.5** organize written and oral presentations using strategies such as lists, outlining, cause/effect relationships, comparison/contrast, problem/solution, and narration to select a focused topic; and
R = 2.04 - 2.05, 3.04 - 3.09, 4.07 - 4.09	**2.6** use handwriting and at the most appropriate time, word processing, to produce a product that is legible.

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COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS WRITE AND SPEAK USING CONVENTIONAL GRAMMAR, USAGE, SENTENCE STRUCTURE, PUNCTUATION, CAPITALIZATION, AND SPELLING.

In order to meet this standard, students will...

R = 1.01 - 1.08, 2.01 - 2.20, - 3.15, 4.01 - 4.09	**3.1**	know, use and refine spelling and grammatical skills in and becoming a self-evaluator of their speaking and writing; **3.01**
R = 1.01 - 1.08, 2.01 - 2.20, 3.01 - 3.15, 4.01 - 4.09	**3.2**	apply correct usage in speaking and writing (e.g., using pronoun reference correctly) and using manuscript forms specified in various style manuals for writing (e.g., indenting for extended quotations, precise placement and form of page numbers, appropriate line spacing);
R = 1.01 - 1.08, 2.01 - 2.20, 3.01 - 3.15, 4.01 - 4.09	**3.3**	use correct sentence structure in writing, e.g., using phrases and clauses for purposes of modification and parallel structure in writing and speaking;
R = 1.01 - 1.08, 2.01 - 2.20, 3.01 - 3.15, 4.01 - 4.09	**3.4**	demonstrate correct punctuation, capitalization, and spelling, e.g., using internal capitalization and punctuation of secondary quotations;

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies
	STANDARD 4: STUDENTS APPLY THINKING SKILLS TO THEIR READING, WRITING, SPEAKING, LISTENING, AND VIEWING.
	In order to meet this standard, students will...
R = 1.02 - 1.07, 2.01, 2.04 - 2.06, 2.08 - 2.09, 2.14 - 2.19, 3.13, 4.03 - 4.06	**4.1** make predictions, analyze, draw conclusions, and discriminate between fact and opinion in writing, reading, speaking, listening, and viewing;
R = 2.12, 3.08 - 3.09	**4.2** use reading, writing, articulate speaking, listening, and viewing to define and solve problems;
R = 3.05 - 3.06, 3.15	**4.3** recognize, express, and defend points of view orally and in writing, and know what constitutes literary quality based on elements such as the author's point of view, the author's selection of significant details, theme development, and the author's reflection of events or ideas of his or her lifetime;
None	**4.4** identify, recognize, and critique the purpose, perspective, and historical and cultural influences of a speaker, author, or director; and
R = 1.01, 2.03, 2.13, 2.10	**4.5** evaluate the reliability, accuracy, and relevancy of information.

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COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 5: STUDENTS READ TO LOCATE , SELECT, AND MAKE USE OF RELEVANT INFORMATION FROM A VARIETY OF MEDIA, REFERENCE, AND TECHNOLOGICAL SOURCES.

In order to meet this standard, students will...

R = 1.01 - 1.08, 2.01 - 2.20, 3.01 - 3.15, 4.01 - 4.09

5.1 select relevant material for reading, writing, and speaking purposes, by using organizational features of printed text such as citations, endnotes, and bibliographic references to locate relevant information, as well as by using strategies to gain information from journals, research studies, and technical documents;

I = 2.08

5.2 understand the structure, organization, and use of various media, reference, and technological sources as they locate and select relevant information for their reading and writing, evaluating information in light of what they know and their specific needs;

R = 1.08, 2.02, 2.05 - 2.06, 2.09, 2.12, 2.20, 3.09 - 3.15, 4.01 - 4.09

5.3 paraphrase, summarize, organize, and synthesize information, using organizational features of electronic text such as bulletin boards, database keyword searches, and e-mail addresses to locate information when technology is available;

R = 2.02 - 2.04, 2.05 - 2.10, 2.12 - 2.13, 3.02, 3.10 - 3.15, 4.02 - 4.03, 4.08 - 4.09

5.4 give credit for others' ideas, images, or information in a bibliography; and

R = 1.08, 2.02, 2.05 - 2.06, 2.09, 2.12, 2.20, 3.09 - 3.15, 4.01 - 4.09

5.5 use available technology to access information, conduct research, and produce a carefully documented, quality product.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies
	STANDARD 6: STUDENTS READ AND RECOGNIZE LITERATURE AS A RECORD OF HUMAN EXPERIENCE.
	In order to meet this standard, students will...
None	**6.1** know and use literary terminology accurately, such as theme, mood, diction, idiom, perspective, style, and point of view;
R = 3.03, 3.10, 3.14, 4.07 - 4.09	**6.2** read literature to investigate common issues and interests;
R = 3.11 - 3.12	**6.3** read literature to understand places, people, events, and vocabulary, both familiar and unfamiliar;
None	**6.4** read literature that reflects the uniqueness and integrity of the American experience;
None	**6.5** read classic and contemporary literature, representing various cultural and ethnic traditions from throughout the world, developing and supporting a thesis about the craft and significance of particular works of literature from a variety of ethnic writers; and
None	**6.6** read classic and contemporary literature of the United States about the experiences and traditions of diverse ethnic groups, identifying recurrent themes in United States' literature.

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 1: STUDENTS KNOW HOW TO USE AND CONSTRUCT MAPS, GLOBES, AND OTHER GEOGRAPHIC TOOLS TO LOCATE AND DERIVE INFORMATION ABOUT PEOPLE, PLACES, AND ENVIRONMENTS.

In order to meet this standard, students will...

None

1.1 acquire, process, and report information from a spatial perspective, including knowledge of and competency in:

- selecting appropriate maps, map projections, and other graphic representations to analyze geographic problems;
- constructing maps using fundamental cartographic principles including translating narratives about places and events into graphic representations;
- interpreting maps and other geographic tools through the use of analysis of case studies and data; and
- using geographic tools to represent and interpret Earth's physical and human systems.

None

1.2 develop knowledge of Earth to locate people, places, and environments, including knowledge of and competency in:

- drawing a complex and accurate map from memory to answer questions about the location of human and physical features;
- identifying and locating physical and human features in their own and nearby communities, in the United States, and in regions of the world (e.g., rivers, mountains, regions, and countries); and
- analyzing maps people make from memory of the same place to determine similarities and differences.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies
None	**1.3** analyze the dynamic spatial organization of people, places, and environments, including knowledge of and competency in: • analyzing geographic information using a variety of scales--local, national, international (e.g., growth issues in Limon, New York City, and Southeast Asia); • analyzing patterns of distribution and arrangement of settlements; and • analyzing patterns and processes of the diffusion of human activities.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies	
	STANDARD 2: STUDENTS KNOW THE PHYSICAL AND HUMAN CHARACTERISTICS OF PLACES, AND USE THIS KNOWLEDGE TO DEFINE AND STUDY REGIONS AND THEIR PATTERNS OF CHANGE.	
	In order to meet this standard, students will...	
None	**2.1** know the physical and human characteristics of places, including knowledge of and competency in: • analyzing the physical and human characteristics that give a place meaning and significance; and • describing the changing human and physical characteristics of places.	
None	**2.2** know how and why people define regions, including knowledge of and competency in: • applying the concept of region to organize the study of a geographic issue using multiple criteria; and • analyzing changes in regions and recognizing the patterns of those changes (e.g., the Caribbean Basin's transition from a major sugarcane producer to a center for tourism).	
I = 2.01, 3.04 - 3.07	**2.3** know how culture and experience influence people's perceptions of places and regions, including knowledge of and competency in: • analyzing why places and regions are important to human identity; • comparing and contrasting how and why different groups in society view places and regions differently; and • analyzing the way places and regions reflect cultural change (e.g., old mining towns become tourist centers).	

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS UNDERSTAND HOW PHYSICAL PROCESSES SHAPE EARTH'S SURFACE PATTERNS AND SYSTEMS.

In order to meet this standard, students will...

None

3.1 know the physical processes that shape Earth's surface patterns, including knowledge of and competency in:

- identifying the dynamics of the four basic components of Earth's physical systems: the atmosphere, biosphere, lithosphere, and hydrosphere;
- explaining the interaction of Earth's physical systems (e.g., the interaction of climate and ocean water as exemplified by El Niño); and
- explaining the variation in the effects of physical processes across Earth's surface (e.g., the effects of wind variations in shaping landforms).

None

3.2 know the characteristics and distributions of physical systems of land, air, water, plants, and animals, including knowledge of and competency in:

- explaining the factors that affect the distribution and characteristics of ecosystems;
- explaining the importance of ecosystems in understanding the environment; and
- analyzing the diversity and productivity of ecosystems.

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 4: STUDENTS UNDERSTAND HOW ECONOMIC, POLITICAL, CULTURAL, AND SOCIAL PROCESSES INTERACT TO SHAPE PATTERNS OF HUMAN POPULATIONS, INTERDEPENDENCE, COOPERATION, AND CONFLICT.

In order to meet this standard, students will...

None

4.1 know the characteristics, location, distribution, and migration of human populations, including knowledge of and competency in:

- evaluating trends and effects of world population numbers and patterns; and
- analyzing the physical and cultural impact of human migration.

None

4.2 know the nature and spatial distribution of cultural patterns, including knowledge of and competency in:

- analyzing how cultures shape the character of a region;
- describing the processes of cultural diffusion; and
- describing the effect of technology on the development and change of cultures.

None

4.3 know the patterns and networks of economic interdependence, including knowledge of and competency in:

- comparing and contrasting the characteristics and distribution of economic systems;
- explaining how places of various size function as centers of economic activity;
- analyzing factors influencing economic interdependence of countries, including world trade;
- analyzing connections among local, regional, and world economies (e.g., transportation routes, movement patterns, and market areas); and
- analyzing how and why levels of economic development vary among places.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies
None	**4.4** know the processes, patterns, and functions of human settlement, including knowledge of and competency in: • analyzing the size, arrangement, structure, and function of urban areas; • comparing and contrasting the differing characteristics of settlement in developing and developed countries; and • examining how and why large cities grow together.
I = 3.01, 3.03 - 3.06	**4.5** know how cooperation and conflict among people influence the division and control of Earth's surface, including knowledge of and competency in: • analyzing why and how cooperation and conflict are involved in shaping the distribution of social, political, and economic spaces on Earth at different scales--local, national, and international; and • analyzing how differing points of view and self-interests play a role in conflict over territory and resources.

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STANDARD 5: STUDENTS UNDERSTAND THE EFFECTS OF INTERACTIONS BETWEEN HUMAN AND PHYSICAL SYSTEMS AND THE CHANGES IN MEANING, USE, DISTRIBUTION, AND IMPORTANCE OF RESOURCES.

In order to meet this standard, students will...

None

5.1 know how human actions modify the physical environment, including knowledge of and competency in:

- analyzing ways humans depend upon, adapt to, and affect the physical environment;
- evaluating ways in which technology has expanded human capacity to modify the physical environment; and
- explaining the possible global effects of human modification of the physical environment.

None

5.2 know how physical systems affect human systems, including knowledge of and competency in:

- comparing and contrasting how changes in the physical environment can increase or diminish its capacity to support human activity;
- identifying and evaluating alternative strategies to respond to constraints placed on human systems by the physical environment (e.g., the use of irrigation in arid environments; and
- analyzing how humans perceive and react to natural hazards.

I = 3.03 - 3.06

5.3 know the changes that can occur in the meaning, use, location, distribution, and importance of resources, including knowledge of and competency in:

- analyzing how the changing distribution of resources affects the patterns of settlement;
- evaluating policies and programs for resource use and management; and
- analyzing the effects of economic activity in modifying and transforming resources.

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 6: STUDENTS APPLY KNOWLEDGE OF PEOPLE, PLACES, AND ENVIRONMENTS TO UNDERSTAND THE PAST AND PRESENT AND TO PLAN FOR THE FUTURE.

In order to meet this standard, students will...

I = 3.04 - 3.06

6.1 know how to apply geography to understand the past, including knowledge of and competency in:

- analyzing how changing perceptions of places and environments affect the behavior of people; and
- analyzing the fundamental role that places and environments have played in history (e.g., the Russian winter in the defeat of Napoleon's army).

I = 3.04 - 3.06

6.2 know how to apply geography to understand the present and plan for the future, including knowledge of and competency in:

- evaluating a contemporary issue using geography knowledge, skills, and perspectives; and
- comparing and contrasting how different viewpoints influence the development of policies designed to use and manage Earth's resources.

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***LIFE MANAGEMENT* STANDARDS**

None

COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 1: STUDENTS UNDERSTAND THE PROCESSES OF SCIENTIFIC INVESTIGATION AND DESIGN, COMMUNICATE ABOUT, AND EVALUATE SUCH INVESTIGATIONS.

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- asking questions and stating hypotheses, using prior scientific knowledge to help guide their development;
- creating and defending a written plan of action for a scientific investigation;
- selecting and using appropriate technologies to gather, process, and analyze data and to report information related to an investigation;
- identifying major sources of error or uncertainty within an investigation (e.g., particular measuring devices and experimental procedures);
- constructing and revising scientific explanations and models, using evidence, logic, and experiments that include identifying and controlling variables;
- communicating and evaluating scientific thinking that leads to particular conclusions;
- recognizing and analyzing alternative explanations and models; and
- explaining the difference between a scientific theory and a scientific hypothesis.

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 2 [PHYSICAL SCIENCE]: STUDENTS KNOW AND UNDERSTAND COMMON PROPERTIES, FORMS, AND CHANGES IN MATTER AND ENERGY (FOCUS: PHYSICS AND CHEMISTRY).

In order to meet this standard, students will...

None

2.1 know that matter has characteristic properties, which are related to its composition and structure, including knowledge of and competency in:

- examining, describing, measuring, classifying, and predicting common properties of substances (e.g., electrical charge, chemical reactivity, acidity, electrical conductivity, radioactivity, relationships in the periodic table);
- describing and explaining properties and composition of samples of matter using models (e.g., atomic and molecular structure, the periodic table);
- separating substances based on their chemical and physical properties (e.g., color, solubility, chemical reactivity, melting point, boiling point); and
- using word and chemical equations to relate observed changes in matter to its composition and structure.

None

2.2 know that energy appears in different forms, and move (be transferred) and change (be transformed), including knowledge of and competency in:

- identifying, measuring, calculating, and analyzing quantitative relationships involved with energy forms (e.g., heat transfer in a system involving mass, specific heat, and change in temperature of matter); and
- identifying, measuring, calculating, and analyzing qualitative and quantitative relationships associated with energy transfer or transformation (e.g., changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation, voltage, current).

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies
None	2.3 understand that interactions can produce changes in a system, although the total quantities of matter and energy remain unchanged, including knowledge of and competency in: • identifying, describing, and explaining physical and chemical changes involving the conservation of matter and energy (e.g., oscillating pendulum/spring, chemical reactions, nuclear reactions); • observing, measuring, and calculating quantities to demonstrate conservation of matter and energy in chemical changes (e.g., force, work, power); • describing and predicting chemical changes (e.g., combustion, simple chemical reactions), and physical interactions of matter (e.g., velocity, force, work, power), using word or symbolic equations; and • describing and predicting chemical changes (e.g., combustion, simple chemical reactions), and physical interactions of matter (e.g., velocity, force, work, power), using word or symbolic equations; and • describing and explaining physical interactions of matter using conceptual models (e.g., conservation laws of matter and energy, particle model for gaseous behavior).

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies

STANDARD 3 [LIFE SCIENCE]: STUDENTS KNOW AND UNDERSTAND THE CHARACTERISTICS AND STRUCTURE OF LIVING THINGS, THE PROCESSES OF LIFE, AND HOW LIVING THINGS INTERACT WITH EACH OTHER AND THEIR ENVIRONMENT (FOCUS: BIOLOGY: ANATOMY, PHYSIOLOGY, BOTANY, ZOOLOGY, ECOLOGY).

In order to meet this standard, students will...

None

3.1 know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and with their environment, including knowledge of and competency in:

- using and producing a variety of classification systems for organisms (e.g., the five-kingdom classification system, classification based on behavior);
- predicting and describing the interactions of populations and ecosystems;
- explaining how adaptations (e.g., structure, behavior) of an organism determine its niche (role) in the environment;
- explaining how changes in an ecosystem can affect biodiversity and how biodiversity contributes to an ecosystem's stability; and
- analyzing the dynamic equilibrium of ecosystems, including interactions among living and non-living components (e.g., tropical deforestation is linked to decreased global precipitation; Mount St. Helen's' eruption had impact on the local ecosystem).

None

3.2 know and understand interrelationships of matter and energy in living systems, including knowledge of and competency in:

- comparing and contrasting the processes of photosynthesis and respiration (e.g., in terms of energy and products);

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- explaining how simple molecules can be built into larger molecules within organisms (e.g., amino acids serve as building blocks of proteins; carbon dioxide and water are the basic materials for building sugars through photosynthesis);
- explaining how large molecules (e.g., starch, protein) are broken down into smaller molecules, serving as an energy source or as basic building blocks in organisms;
- explaining how energy is used in the maintenance, repair, growth, and development of tissues (e.g., in the production of new skin cells requires energy); and
- describing the cycling of matter and the movement and change of energy through the ecosystem (e.g., some energy dissipates as heat as it is transferred through a food web).

None

3.3 know and understand how the human body functions, factors that influence its structures and functions, and how these structures and functions compare with those of other organisms, including knowledge of and competency in:

- describing cellular organelles and their function;
- differentiating among levels of organization and their roles within the whole organism;
- explaining human body function in terms of interacting organ systems composed of specialized structures that maintain or restore health;
- comparing and contrasting characteristics of and treatments for various types of medical problems;
- using examples to explain the relationship of structure and function in organisms; and
- describing the pattern and process of reproduction and development in several organisms.

None

3.4 know and understand how organisms change over time in terms of biological evolution and genetics, including knowledge of and competency in:

- comparing and contrasting the purpose and process of cell division (mitosis) with the production of sex cells (meiosis);

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- giving examples to show how some traits can be inherited while others are due to the interaction of genes and the environment;
- describing how DNA serves as the vehicle for genetic continuity and the source of genetic diversity upon which natural selection can act;
- describing how mutation, natural selection, and reproductive isolation can lead to new to new species and explain the planet's biodiversity;
- explaining why variation within a population improves the chances that the species will survive under new environmental conditions;
- describing the general structure and function of the gene (DNA) and its role in heredity and protein synthesis;
- calculating the probability that an individual will inherit a particular single gene trait.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies
	STANDARD 4 [EARTH AND SPACE SCIENCE]: STUDENTS KNOW AND UNDERSTAND THE PROCESSES AND INTERACTIONS OF EARTH'S SYSTEMS AND THE STRUCTURE AND DYNAMICS OF EARTH AND OTHER OBJECTS IN SPACE. (FOCUS: GEOLOGY, METEOROLOGY, ASTRONOMY, OCEANOGRAPHY).
	In order to meet this standard, students will...
None	**4.1** know and understand the composition of Earth, its history, and the natural processes that shape it, including knowledge of and competency in: • describing the composition and structure of Earth's interior; • using the theory of plate tectonics to explain relationships among earthquakes, volcanoes, mid-ocean ridges, and deep-sea trenches; • using evidence to investigate how Earth has changed or remained constant over short and long periods of time; • evaluating the feasibility of predicting and controlling natural events; and • analyzing the costs, benefits, and consequences of natural resource exploration, development, and consumption.
None	**4.2** know and understand the general characteristics of the atmosphere and fundamental processes of weather, including knowledge of and competency in: • analyzing the structure of and changes in the atmosphere, and their significance for life on Earth; • explaining and analyzing general weather patterns by collecting, plotting, and interpreting data; • describing how energy transfer within the atmosphere influences weather;

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- investigating and explaining the occurrence and effects of storms on human populations and the environment; and
- describing and explaining factors that may influence weather and climate.

None

4.3 know major sources of water, its uses, importance and cyclic patterns of movement through the environment, including knowledge of and competency in:

- identifying and explaining factors that influence the quality of water needed to sustain life;
- identifying and analyzing the costs, benefits, and consequences of using water resources;
- explaining interactions between water and other Earth systems; and
- explaining interrelationships between the circulation of oceans and weather and climate.

None

4.4 know the structure of the solar system, composition and interactions of objects in the universe, and how space is explored, including knowledge of and competency in:

- explaining the causes of and modeling the varied lengths of days, seasons, and phases of the Moon;
- describing the effect of gravitation on the motions observed in the solar system and beyond;
- describing electromagnetic radiation produced by the Sun and other stars;
- comparing the Sun with other stars; and
- identifying and describing the everyday impact of recent space technology.

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***LIFE MANAGEMENT* STANDARDS**

TECHNOLOGY,

I = 1.07

COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
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STANDARD 5: STUDENTS KNOW AND UNDERSTAND INTERRELATIONSHIPS AMONG SCIENCE, AND HUMAN ACTIVITY AND HOW THEY CAN AFFECT THE WORLD.

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- analyzing benefits, limitations, costs, and consequences involved in using technology or resources;
- analyzing how the introduction of a new technology has affected or could affect human activity;
- demonstrating the interrelationships between science and technology; and
- explaining the use of technology in an occupation.

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STANDARD 6: STUDENTS UNDERSTAND THAT SCIENCE INVOLVES A PARTICULAR WAY OF KNOWING AND UNDERSTAND COMMON CONNECTIONS AMONG SCIENTIFIC DISCIPLINES.

I = All

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- evaluating print and visual media for scientific evidence, bias, or opinion;
- explaining that the scientific way of knowing uses a critique and consensus process;
- using graphs, equations, or other models to analyze systems involving change and constancy;
- analyzing and comparing models of cyclic change as used within and among scientific disciplines;
- identifying and predicting cause-effect relationships within a system;
- identifying and describing the dynamics of natural systems;
- identifying and testing a model to analyze systems involving change and constancy;
- explaining an exponential model; and
- refining a hypothesis based on an accumulation of data over time.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12 Competencies
	STANDARD 1: STUDENTS UNDERSTAND THE CHRONOLOGICAL ORGANIZATION OF HISTORY AND KNOW HOW TO ORGANIZE EVENTS AND PEOPLE INTO MAJOR ERAS TO IDENTIFY AND EXPLAIN HISTORICAL RELATIONSHIPS.
	In order to meet this standard, students will...
None	**1.1** know the general chronological order of events and people in history, including • identifying events and people that characterize each of the major eras in United States and world history.
None	**1.2** use chronology to organize historical events and people, including • reconstructing the time structure and identifying connections found in historical narratives; • using timelines to organize large quantities of historical information, compare different time periods and places, and answer historical questions; and • describing how history can be organized, using various criteria (e.g., thematically, chronologically, geographically) to group people and events.
None	**1.3** use chronology to examine and explain historical relationships, including • distinguishing between cause-and-effect relationships and events that happen or occur concurrently or sequentially; • analyzing and explaining cause-and-effect relationships using historical information that is organized chronologically; and • using both chronological order and the duration of events to detect and analyze patterns of historical continuity and change.

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STANDARD 2: STUDENTS KNOW HOW TO USE THE PROCESSES AND RESOURCES OF HISTORICAL INQUIRY.

In order to meet this standard, students will...

R = 1.02, 1.04 - 1.08, 2.01, 2.02, 2.04, 2.05, 2.07, 2.09, 2.11 - 2.16, 2.18, 3.02, 3.03, 3.05, 3.09, 3.13, 3.15, 4.02

2.1 know how to formulate questions and hypotheses regarding what happened in the past and to obtain and analyze historical data to answer questions and test hypotheses, including

- formulating historical hypotheses from multiple, historically objective perspectives, using multiple sources; and
- gathering, analyzing, and reconciling historical information, including contradictory data, from primary and secondary sources to support or reject hypotheses.

None

2.2 know how to interpret and evaluate primary and secondary sources of historical information, including

- explaining how historical descriptions, arguments, and judgments can reflect the bias of the author and/or the prevailing ideas of the culture and time period;
- interpreting oral traditions and legends as "histories";
- evaluating data within the social, political, and economic context in which it was created, testing its credibility, and evaluating its bias; and
- comparing and contrasting the reliability of information received from multiple sources.

R = 1.02, 1.04, 1.05, 1.07, 2.01, 2.05, 2.06, 2.15, 2.18, 3.01 - 3.03, 3.07, 3.09 - 3.11, 3.13 - 3.15, 4.01, 4.02, 4.05, 4.08, 4.09

2.3 apply knowledge of the past to analyze present-day issues and events from multiple, historically objective perspectives, including

- identifying historical contexts of contemporary issues;
- identifying how print and electronic media can affect perspectives regarding historical events; and

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- using historical information to interpret and evaluate decisions or policies regarding contemporary issues.

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STANDARD 3: STUDENTS UNDERSTAND THAT SOCIETIES ARE DIVERSE AND HAVE CHANGED OVER TIME.

In order to meet this standard, students will...

None

3.1 know how various societies were affected by contacts and exchanges among diverse peoples, including

- describing the interactions and contributions of the various peoples and cultures that have lived in or migrated, immigrated, or were brought to the area that is now the United States, including African, European, Latino, and Native American;
- describing and explaining the circumstances under which past and current societies have interacted and changed, resulting in cultural diffusion (e.g., trade, war, exploration, imperialism, social disruptions, improvements in communication, and transportation);
- explaining the reasons for major periods of immigration to the United States and describing how different segments of U.S. society reacted and changed; and
- describing the demographic changes resulting from major migrations in history (e.g., migration of Chinese south; Islamic nomads into northern India; Germanic migrations into the Roman Empire; Bantu migrations south; Amer-Indian migrations into Central America; trans-Pacific migration).

I = 1.01, 1.02, 1.04, 1.05, 1.07, 2.01, 2.05 - 2.09, 2.11, 2.12, 2.14, 3.05, 3.07, 3.09, 3.10, 3.12 - 3.15, 4.07

3.2 understand the history of social organization in various societies, including

- explaining how societies are maintained when individuals see benefits and fulfill obligations of membership;
- analyzing how forces of change have influenced, altered, and maintained social roles and the social organization of societies throughout history;

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- explaining how, throughout history, social organization has been related to distributions of privilege and power; and
- describing how societies have become increasingly complex in responding to the fundamental issues of social organization.

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STANDARD 4: STUDENTS UNDERSTAND HOW SCIENCE, TECHNOLOGY, AND ECONOMIC ACTIVITY HAVE DEVELOPED, CHANGED, AND AFFECTED SOCIETIES THROUGHOUT HISTORY.

In order to meet this standard, students will...

R = 1.02 - 1.05, 1.07, 2.12, 2.14, 2.17, 2.18, 3.01, 3.03, 3.09, 3.13, 3.14, 4.02 - 4.04, 4.07 - 4.09

4.1 understand the impact of scientific and technological developments on individuals and societies, including

- understanding the major technological turning points in history (e.g., agricultural revolution, revolutions in transportation, industrial revolution);
- explaining how the scientific revolution affected how people lived in and viewed the world;
- describing and explaining the social and economic changes that resulted from industrialization; and
- analyzing the impact of rapid developments in areas such as transportation, technology, and telecommunications on individuals and the world today.

I = 2.05, 2.06, 2.16

4.2 understand how economic factors have influenced historical events, including

- describing how systems of exchange and other economic developments influenced the growth and history of civilizations;
- explaining how economic changes led to the growth of towns, cities, and eventually, the modern nation-state;
- analyzing the relationship between economic factors and social and political policies throughout United States' history;
- explaining how the rise and expansion of trade have connected and affected the history of regions of the world; and
- describing modern historical developments in economic interdependence (e.g., the emergence of the Pacific Rim, NAFTA, the European Union), and their impact on individuals and societies.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12 Competencies
R = 2.01, 2.04 - 2.06	**4.3** understand the historical development and know the characteristics of various economic systems, including • explaining the historical development of the economic system of the United States; • analyzing the history of the relationship between economic systems and the role of governments throughout history; • describing characteristics of specific economic systems and how these systems have existed in different ways at different times throughout history (e.g., manorialism, mercantilism, capitalism, socialism, communism); and • tracing the historical factors that led to the transition from local and regional economies to a globally interdependent economy.

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STANDARD 5: STUDENTS UNDERSTAND POLITICAL INSTITUTIONS AND THEORIES THAT HAVE DEVELOPED AND CHANGED OVER TIME.

In order to meet this standard, students will...

None

5.1 understand how democratic ideas and institutions in the United States have developed, changed, and/or been maintained, including

- identifying and explaining the role of the ideas expressed in the documents that influenced the development of constitutional democracy (e.g., Magna Carta, English Bill of Rights, Mayflower Compact);
- analyzing how the ideas set forth in the Declaration of Independence, Constitution and Bill of Rights, Federalist Papers, and landmark Supreme Court cases affect and operate in the contemporary United States;
- identifying and analyzing how historical events have affected the organization of the political system of the United States (e.g., the American Revolution, the Civil War, the Mexican War, the Populist and Progressive Movements); and
- analyzing how the United States' political system has dealt with various constitutional crises (e.g., the Civil War, Alien-Sedition Acts, assassinations, Watergate).

None

5.2 know how various systems of government have developed and functioned throughout history, including

- comparing and contrasting the characteristics and effects of the various political systems that developed throughout history (e.g., republics, representative and direct democracy, feudalism, centralized monarchy, absolutism, principalities, imperial dynasties, tribal kingdoms);
- comparing and contrasting the political traditions of Western Hemisphere nations;
- describing the characteristics and ideas of various modern political systems, and giving examples of nations that have used them (e.g., democracy, fascism, communism); and

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- explaining how nation-states developed throughout the world and became the dominant form of contemporary political organization.

None

5.3 know how political power has been acquired, maintained, used, and/or lost throughout history, including

- explaining how military conquest and invasion have been used to assume, maintain, and extend political power throughout history;
- analyzing the impact of major revolutions on the realignment of political power throughout the modern world;
- analyzing how genocide has been used to acquire or maintain political power;
- describing how the development, expansion, and collapse of empires throughout history have affected the expansion of political power;
- describing and analyzing the major events in the expansion of the political power of the United States (e.g., the American Revolution, the Louisiana Purchase, the Mexican War);
- analyzing the causes and events of major wars of the contemporary era and the resulting changes in the distribution of political power (e.g., World War I, World War II, War in Vietnam, the Russian Invasion of Afghanistan); and
- giving examples of former colonies and dependent states throughout the world that have gained independence in the 20th century, and explaining how they have addressed the political issues related to independence.

None

5.4 know the history of relationships among different political powers and the development of international relations, including

- describing the characteristics of relationships among political entities in the past (e.g., monarchies, empires, principalities, city-states, federations);
- explaining how the growth of nationalism affected the relationships among political powers;

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- describing the eras of United States' diplomacy from the Revolution through the modern period (e.g., the Monroe Doctrine, the domino theory, detente);
- explaining how the foreign policy of the United States and other nations continues to develop and change; and
- analyzing the development of and issues associated with worldwide movements and organizations such as the League of Nations, the United Nations, and Amnesty International.

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STANDARD 6: STUDENTS KNOW THAT RELIGIOUS AND PHILOSOPHICAL IDEAS HAVE BEEN POWERFUL FORCES THROUGHOUT HISTORY.

In order to meet this standard, students will...

R = 3.04 - 3.09, 3.11 - 3.13, 3.15, 4.07

6.1 know the historical development of religions and philosophies, including

- describing basic tenets of world religions that have acted as major forces throughout history, including but not limited to Buddhism, Christianity, Hinduism, Islam, and Judaism;
- tracing the history of how principal world religions and belief systems developed and spread;
- explaining how, throughout history, conflicts among peoples have arisen because of different ways of knowing and believing; and
- describing basic ideas of various schools of philosophy that have affected societies throughout history (e.g., rationalism, idealism, liberalism, conservatism).

R = 3.04, 3.05, 3.08, 3.12

6.2 know how societies have been affected by religions and philosophies, including

- giving examples of how religion and philosophical beliefs have influenced various aspects of society throughout history;
- explaining how, throughout history the power of the state has been both derived from religious authority and/or in conflict with religious authority;
- explaining how the focus on individualism and reason expressed in Western philosophy has affected the history of Western culture, including the history of the United States; and
- explaining how the beliefs expressed in Eastern philosophy and religion have affected the history of Eastern cultures.

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R = 2.01, 3.09, 3.12, 3.15, 4.07

6.3 know how various forms of expression reflect religious beliefs and philosophical ideas, including

- explaining from an historical context why artistic and literary expression have often resulted in controversy; and
- giving examples of the visual arts, dance, music, theatre, and architecture of the major periods of history and explaining what they indicate about the values and beliefs of various societies.

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LIFE MANAGEMENT STANDARDS	COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies
	STANDARD 1: STUDENTS DEVELOP NUMBER SENSE AND USE NUMBERS AND NUMBER RELATIONSHIPS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.
	In order to meet this standard, students will...
R = 1.01, 1.03, 2.01 - 2.05, 2.11, 2.13, 2.16 - 2.19, 4.03	**1.1** construct and interpret number meanings through real-world experiences and the use of hands-on materials;
None	**1.2** represent and use numbers in a variety of equivalent forms (e.g., fractions, decimals, percents, exponents, scientific notation);
None	**1.3** know the structure and properties of the real number system (e.g., primes, factors, multiples, relationships among sets of numbers);
R = 1.01, 1.03, 2.01, 2.11, 2.13, 2.16 - 2.19, 3.09, 4.04	**1.4** use number sense, including estimation and mental arithmetic, to determine the reasonableness of solutions.
	As students extend their knowledge, what they know and are able to do includes
	• demonstrating meaning for real numbers, absolute value, and scientific notation using physical materials and technology on problem-solving situations;
	• developing, testing, and explaining conjectures about properties of number systems and sets of numbers; and
	• using number sense to estimate and justify the reasonableness of solutions to problems involving real numbers.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 2: STUDENTS USE ALGEBRAIC METHODS TO EXPLORE, MODEL, AND DESCRIBE PATTERNS AND FUNCTIONS INVOLVING NUMBERS, SHAPES, DATA, AND GRAPHS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

I = 2.05, 2.14 - 2.16

2.1 identify, describe, analyze, extend, and create a wide variety of patterns in numbers, shapes, ;

None

2.2 describe patterns using mathematical language;

None

2.3 solve problems and model real-world situations using patterns and functions;

None

2.4 compare and contrast different types of functions; and

None

2.5 describe the connections among representations of patterns and functions, including words, tables, graphs, and symbols.

As students extend their knowledge, what they know and are able to do includes

- modeling real-world phenomena (e.g., distance vs. time relationships, compound interest, amortization tables, mortality rates) using functions, equations, inequalities, and matrices;
- representing functional relationships using written explanations, tables, equations, and graphs, and describing the connections among these representations;
- solving problems involving functional relationships using graphing calculators and/or computers as well as appropriate paper-and-pencil techniques;

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- analyzing and explaining the behaviors, transformations, and general properties of types of equations and functions (e.g., linear, quadratic, exponential); and

- interpreting algebraic equations and inequalities geometrically and describing geometric relationships algebraically.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS USE DATA COLLECTION AND ANALYSIS, STATISTICS, AND PROBABILITY IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

None — **3.1** solve problems by systematically collecting, organizing, describing, and analyzing data using surveys, tables, charts, and graphs;

None — **3.2** make valid inferences, decisions, and arguments based on data analysis; and

None — **3.3** use counting techniques, experimental probability, or theoretical probability, as appropriate, to represent and solve problems involving uncertainty.

As students extend their knowledge, what they know and are able to do includes

- designing and conducting a statistical experiment to study a problem, and interpreting and communicating the results using the appropriate technology (e.g., graphing calculators, computer software);
- analyzing statistical claims for erroneous conclusions or distortions;
- fitting curves to scatter plots, using informal methods or appropriate technology, to determine the strength of the relationship between two data sets and to make predictions;
- drawing conclusions about distributions of data based on analysis of statistical summaries;

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- using experimental and theoretical probability to represent and solve problems involving uncertainty (e.g., the chance of playing professional sports if a student is a successful high school athlete); and

- solving real-world problems with informal use of combinations and permutations (e.g., determining the number of possible meals at a restaurant featuring a given number of side dishes).

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STANDARD 4: STUDENTS USE GEOMETRIC CONCEPTS, PROPERTIES, AND RELATIONSHIPS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

None — **4.1** connect various physical objects with their geometric representation;

None — **4.2** connect mathematical concepts from across the standards with their geometric representations;

None — **4.3** recognize, draw, describe, and analyze geometric shapes in one, two, and three dimensions;

None — **4.4** make, investigate, and test conjectures about geometric ideas; and

None — **4.5** solve problems and model real-world situations using geometric concepts.

As students extend their knowledge, what they know and are able to do includes

- finding and analyzing relationships among geometric figures using transformations (e.g., reflections, translations, rotations, dilations) in coordinate systems;
- deriving and using methods to measure perimeter, area, and volume of regular and irregular geometric figures;
- making and testing conjectures about geometric shapes and their properties, incorporating technology where appropriate; and

using trigonometric ratios in problem-solving situations (e.g., finding the height of a building from a given point, if the distance to the building and the angle of elevation are known).

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SOLVING

STANDARD 5. STUDENTS USE A VARIETY OF TOOLS AND TECHNIQUES TO MEASURE, APPLY THE RESULTS IN PROBLEM-SOLVING SITUATIONS, AND COMMUNICATE THE REASONING USED IN THESE PROBLEMS.

In order to meet this standard, students will...

None

5.1 understand and apply the attributes of length, capacity, weight, mass, time, temperature, perimeter, area, volume, and angle measurement in problem-solving situations;

None

5.2 make and use direct and indirect measurements to describe and compare real-world phenomena;

None

5.3 understand the structure and use of systems of measurement;

None

5.4 describe and use rates of change (e.g., temperature as it changes throughout the day, or speed as the rate of change of distance over time) and other derived measure; and

None

5.5 select appropriate units, including metric and U.S. customary, and tools (e.g., rulers, protractors, compasses, thermometers) to measure to the degree of accuracy required to solve a given problem.

As students extend their knowledge, what they know and are able to do includes

- measuring quantities indirectly using techniques of algebra, geometry, or trigonometry;
- selecting and using appropriate techniques and tools to measure quantities in order to achieve specified degrees of precision, accuracy, and error (or tolerance) of measurements; and
- determining the degree of accuracy of a measurement (e.g., by understanding and using significant digits.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 6: STUDENTS LINK CONCEPTS AND PROCEDURES AS THEY DEVELOP AND USE COMPUTATIONAL TECHNIQUES, INCLUDING ESTIMATION, MENTAL ARITHMETIC, PAPER-AND-PENCIL, CALCULATORS, AND COMPUTERS, IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

R = 1.01, 1.03, 2.01 - 2.03, 2.05, 2.11, 2.16 - 2.18, 4.03

6.1 model, explain, and use the four basic operations--addition, subtraction, multiplication, and division--in problem-solving situations;

None

6.2 develop, use, and analyze algorithms; and

R = 1.01, 1.03, 2.01 - 2.03, 2.05, 2.16 - 2.18, 4.03

6.3 select and apply appropriate computational techniques to solve a variety of problems and determine whether the results are reasonable.

As students extend their knowledge, what they know and are able to do includes

- using ratios, proportions, and percents in problem-solving situations;
- selecting and using appropriate methods for computing with real numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods, and determining whether the results are reasonable; and
- describing the limitations of estimation, and assessing the amount of error resulting from estimation within acceptable limits.

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STATE OF COLORADO

STUDENT STANDARDS FOR RELATIONSHIPS CURRICULUM

1. Individual.

Content Standard: The student will demonstrate self-improvement skills by analyzing self-concept and role expectations, practicing decision-making and problem-solving skills, and creating coping strategies and support systems.

1.01 Assess factors affecting personal self-concept.

1.02 Examine goals and values in understanding self.

1.03 Examine self in relation to environment.

1.04 Examine personal responsibilities in relation to self and others.

1.05 Analyze the individual's role in family, community, and culture.

1.06 Develop personal decision-making skills.

1.07 Develop positive strategies for coping with stress.

1.08 Examine personal and family support systems.

2. Personal Interactions.

Content Standard: The student will analyze how communication impacts relationships and personal issues.

2.01 Assess how communication affects relationships.

2.02 Evaluate friendships and relationships.

2.03 Examine and analyze issues of teenagers.

3. Adult Lifestyles.

Content Standard: The student will evaluate the aspects of various long-term relationships and the resulting lifestyles.

3.01 Assess alternative lifestyles.

3.02 Examine lifestyles' changes between adolescence and adulthood.

3.03 Analyze personal lifestyle desires.

3.04 Analyze the social, emotional, legal, physical, intellectual, and financial aspects of long-term relationships/marriage.

3.05 Examine compatibility factors in relationships.

3.06 Assess factors in becoming a couple.

3.07 Examine laws and preparations for marriage.

3.08 Assess the importance of commitment and responsibility to marital adjustment.

4. Parenting.

Content Standard: The student will analyze the factors involved in making a choice to become a parent.

4.01 Evaluate considerations for parenting.

4.02 Evaluate considerations for readiness in parenting.

4.03 Examine family planning compatible with personal values and parenting decisions.

4.04 Determine factors involved in conception, pregnancy, prenatal care, labor, and delivery.

4.05 Examine adjustments to parenting.

4.06 Examine the importance of caring for children.

4.07 Examine the developmental needs of children.

4.08 Examine parenting skills needed to foster human development.

4.09 Examine child care decisions.

4.10 Plan for shared parental responsibilities in child care.

4.11 Explore child care options for working parents.

4.12 Research costs related to child care.

4.13 Analyze self-care techniques for the pre-adolescent.

5. Family.

Content Standard: The student will examine the function and characteristics of family systems and investigate strategies for dealing with family issues.

5.01 Understand concepts of the family.

5.02 Evaluate definitions of the family.

5.03 Examine the responsibilities of an individual in establishing family goals and values.

5.04 Compare the various family structures.

5.05 Examine functional/dysfunctional family concepts.

5.06	Examine the function and purpose of the family as a unit in society.
5.07	Examine family traditions.
5.08	Determine factors affecting family relationships.
5.09	Demonstrate appropriate communication techniques for different family situations.
5.10	Examine personal and family support systems.
5.11	Explore personal wants/needs in relation to work and family.
5.12	Compare effective strategies for coping with work and family.
5.13	Analyze effects on family at stages of the life cycle.
5.14	Investigate strategies for dealing with individual and family issues.

***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 1: STUDENTS READ AND UNDERSTAND A VARIETY OF MATERIALS.

In order to meet this standard, students will...

R = 1.02 - 1.05, 1.08, 2.01 - 2.03, 3.01 - 3.06, 5.04 - 5.05, 5.08 - 5.10, 5.12 - 5.14

1.1 use comprehension skills such as previewing, predicting, inferring, comparing and contrasting, re-reading and self-monitoring, summarizing, identifying the author's purpose, determining the main idea, and applying knowledge of foreshadowing, metaphor, simile, symbolism, and other figures of speech.

R = 1.06 - 1.07, 2.01, 2.03, 3.01 - 3.02, 3.04 - 3.08, 4.01 - 4.13, 5.01 - 5.14

1.2 make connections between their reading and what they already know, and identify what they need to know about a topic before reading about it.

R = 1.06 - 1.08, 2.01, 2.03, 3.01 - 3.02, 3.04 - 3.08, 4.01 - 4.13, 5.01 - 5.09, 5.12 - 5.14

1.3 adjust reading strategies for different purposes such as reading carefully, idea by idea; skimming and scanning; fitting materials into an organizational pattern, such as reading a novel chronologically; finding information to support particular ideas; finding the sequence of steps in a technical publication; and using a full range of strategies to comprehend essays, speeches, autobiographies, and first-person historical documents in addition to the above-mentioned types of literature.

R = 1.05, 2.01, 2.04

1.4 use word recognition skills and resources such as phonics, context clues, picture clues, word origins, and word order clues; reference guides; roots, prefixes, and suffixes of words for comprehension; and

R = 1.02 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.10, 5.12 - 5.14

1.5 use information from their reading to increase vocabulary and enhance language usage.

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COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 2: STUDENTS WRITE AND SPEAK FOR A VARIETY OF PURPOSES AND AUDIENCES.

In order to meet this standard, students will...

R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**2.1** write and speak for a variety of purposes such as telling stories, presenting analytical responses to literature, conveying technical information, explaining concepts and procedures, persuading, and using fictional, dramatic, and poetic techniques in writing while incorporating material from a wider range of sources (e.g., newspapers, magazines, technical publications, books) in their writing and speaking;
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**2.2** write and speak for audiences such as peers, teachers, and the community, and support an opinion using various forms of persuasion (factual or emotional) and experimenting with stylistic elements such as voice, tone, and style in writing and speaking;
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**2.3** plan, draft, revise, proofread, and edit written communications, conveying technical information in a written form appropriate to the audience;
R = 1.05 - 1.07, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**2.4** use a variety of devices such as figurative language, symbolism, dialect, and precise vocabulary to convey meaning in various specialized fields (e.g., scientific, technical, business communications);
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**2.5** organize written and oral presentations using strategies such as lists, outlining, cause/effect relationships, comparison/contrast, problem/solution, and narration to select a focused topic; and
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, I = Introduce R = Reinforce M = Master	**2.6** use handwriting and at the most appropriate time, word processing, to produce a product that is legible.

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5.01 - 5.14

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COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS WRITE AND SPEAK USING CONVENTIONAL GRAMMAR, USAGE, SENTENCE STRUCTURE, PUNCTUATION, CAPITALIZATION, AND SPELLING.

In order to meet this standard, students will...

R = 1.01 - 1.08, 2.01 - 2.03, - 3.08, 4.01 - 4.13, 5.01 - 5.14	**3.1** know, use and refine spelling and grammatical skills in and becoming a self-evaluator of their **3.01** speaking and writing;
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**3.2** apply correct usage in speaking and writing (e.g., using pronoun reference correctly) and using manuscript forms specified in various style manuals for writing (e.g., indenting for extended quotations, precise placement and form of page numbers, appropriate line spacing);
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**3.3** use correct sentence structure in writing, e.g., using phrases and clauses for purposes of modification and parallel structure in writing and speaking;
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**3.4** demonstrate correct punctuation, capitalization, and spelling, e.g., using internal capitalization and punctuation of secondary quotations;

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***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies

STANDARD 4: STUDENTS APPLY THINKING SKILLS TO THEIR READING, WRITING, SPEAKING, LISTENING, AND VIEWING.

In order to meet this standard, students will...

R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14

4.1 make predictions, analyze, draw conclusions, and discriminate between fact and opinion in writing, reading, speaking, listening, and viewing;

R = 1.06 - 1.07, 2.03, 5.14

4.2 use reading, writing, articulate speaking, listening, and viewing to define and solve problems;

R = 1.01 - 1.05, 1.07, constitutes 2.02 - 2.03, 3.01, 3.03 - 3.04, 3.06, 3.08, 4.01 - 4.03, 4.05 - 4.06, 4.08 - 4.11, 5.03, 5.08 - 5.09, 5.11 - 5.12, 5.14

4.3 recognize, express, and defend points of view orally and in writing, and know what literary quality based on elements such as the author's point of view, the author's selection of significant details, theme development, and the author's reflection of events or ideas of his or her lifetime;

R = 1.05, 1.07, 2.03, 3.01 - 3.02, 3.04, 3.06, 3.07 - 3.08, 4.01 - 4.11, 5.01 - 5.14

4.4 identify, recognize, and critique the purpose, perspective, and historical and cultural influences of a speaker, author, or director; and

R = 2.01, 2.03, 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.06, 5.12 - 5.14

4.5 evaluate the reliability, accuracy, and relevancy of information.

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***RELATIONSHIPS* STANDARDS**	**COLORADO'S ACADEMIC STANDARDS:** Reading and Writing, including Grades 9 - 12 Competencies	
	STANDARD 5: STUDENTS READ TO LOCATE , SELECT, AND MAKE USE OF RELEVANT INFORMATION FROM A VARIETY OF MEDIA, REFERENCE, AND TECHNOLOGICAL SOURCES.	
	In order to meet this standard, students will...	
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.02, 3.04, 3. 06, 3.07 - 3.08, 4.01 - 4.11, 5.01 - 5.14	**5.1**	select relevant material for reading, writing, and speaking purposes, by using organizational features of printed text such as citations, endnotes, and bibliographic references to locate relevant information, as well as by using strategies to gain information from journals, research studies, and technical documents;
R = 2.01, 2.03, 3.01 - 3.04, 3.07, 4.01, 4.04 - 4.13, 5.01 - 5.06	**5.2**	understand the structure, organization, and use of various media, reference, and technological sources as they locate and select relevant information for their reading and writing, evaluating information in light of what they know and their specific needs;
R = 1.01 - 1.08, 2.01 - 2.03, 3.01 - 3.02, 3.04, 3. 06, 3.07 - 3.08, 4.01 - 4.11, 5.01 - 5.14	**5.3**	paraphrase, summarize, organize, and synthesize information, using organizational features of electronic text such as bulletin boards, database keyword searches, and e-mail addresses to locate information when technology is available;
None	**5.4**	give credit for others' ideas, images, or information in a bibliography; and
R = 1.02 - 1.04, 1.05 - 1.07, 3.04 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**5.5**	use available technology to access information, conduct research, and produce a carefully documented, quality product.

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: Reading and Writing, including Grades 9 - 12 Competencies	
	STANDARD 6: STUDENTS READ AND RECOGNIZE LITERATURE AS A RECORD OF HUMAN EXPERIENCE.	
	In order to meet this standard, students will...	
None	**6.1** know and use literary terminology accurately, such as theme, mood, diction, idiom, perspective, style, and point of view;	
R = 1.01 - 1.08, 2.01 - 2.03 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**6.2** read literature to investigate common issues and interests;	
R = 1.01 - 1.08, 2.01 - 2.03 3.01 - 3.08, 4.01 - 4.13, 5.01 - 5.14	**6.3** read literature to understand places, people, events, and vocabulary, both familiar and unfamiliar;	
None	**6.4** read literature that reflects the uniqueness and integrity of the American experience;	
None	**6.5** read classic and contemporary literature, representing various cultural and ethnic traditions from throughout the world, developing and supporting a thesis about the craft and significance of particular works of literature from a variety of ethnic writers; and	
None	**6.6** read classic and contemporary literature of the United States about the experiences and traditions of diverse ethnic groups, identifying recurrent themes in United States' literature.	

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 1: STUDENTS KNOW HOW TO USE AND CONSTRUCT MAPS, GLOBES, AND OTHER GEOGRAPHIC TOOLS TO LOCATE AND DERIVE INFORMATION ABOUT PEOPLE, PLACES, AND ENVIRONMENTS.

In order to meet this standard, students will...

None

1.1 acquire, process, and report information from a spatial perspective, including knowledge of and competency in:

- selecting appropriate maps, map projections, and other graphic representations to analyze geographic problems;
- constructing maps using fundamental cartographic principles including translating narratives about places and events into graphic representations;
- interpreting maps and other geographic tools through the use of analysis of case studies and data; and
- using geographic tools to represent and interpret Earth's physical and human systems.

None

1.2 develop knowledge of Earth to locate people, places, and environments, including knowledge of and competency in:

- drawing a complex and accurate map from memory to answer questions about the location of human and physical features;
- identifying and locating physical and human features in their own and nearby communities, in the United States, and in regions of the world (e.g., rivers, mountains, regions, and countries); and
- analyzing maps people make from memory of the same place to determine similarities and differences.

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies
None	**1.3** analyze the dynamic spatial organization of people, places, and environments, including knowledge of and competency in: • analyzing geographic information using a variety of scales--local, national, international (e.g., growth issues in Limon, New York City, and Southeast Asia); • analyzing patterns of distribution and arrangement of settlements; and • analyzing patterns and processes of the diffusion of human activities.

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***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 2: STUDENTS KNOW THE PHYSICAL AND HUMAN CHARACTERISTICS OF PLACES, AND USE THIS KNOWLEDGE TO DEFINE AND STUDY REGIONS AND THEIR PATTERNS OF CHANGE.

In order to meet this standard, students will...

None

2.1 know the physical and human characteristics of places, including knowledge of and competency in:

- analyzing the physical and human characteristics that give a place meaning and significance; and
- describing the changing human and physical characteristics of places.

None

2.2 know how and why people define regions, including knowledge of and competency in:

- applying the concept of region to organize the study of a geographic issue using multiple criteria; and
- analyzing changes in regions and recognizing the patterns of those changes (e.g., the Caribbean Basin's transition from a major sugarcane producer to a center for tourism).

R = 1.08, 3.01, 3.03, 4.01, 4.06, 5.04; 1.05, 1.08, 3.01, 3.03, 4.01, 4.06, 5.04; 1.05, 1.08, 3.01, 3.03, 4.01, 4.06, 4.09, 5.04

2.3 know how culture and experience influence people's perceptions of places and regions, including knowledge of and competency in:

- analyzing why places and regions are important to human identity;
- comparing and contrasting how and why different groups in society view places and regions differently; and
- analyzing the way places and regions reflect cultural change (e.g., old mining towns become tourist centers).

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS UNDERSTAND HOW PHYSICAL PROCESSES SHAPE EARTH'S SURFACE PATTERNS AND SYSTEMS.

In order to meet this standard, students will...

None

3.1 know the physical processes that shape Earth's surface patterns, including knowledge of and competency in:

- identifying the dynamics of the four basic components of Earth's physical systems: the atmosphere, biosphere, lithosphere, and hydrosphere;
- explaining the interaction of Earth's physical systems (e.g., the interaction of climate and ocean water as exemplified by El Niño); and
- explaining the variation in the effects of physical processes across Earth's surface (e.g., the effects of wind variations in shaping landforms).

None

3.2 know the characteristics and distributions of physical systems of land, air, water, plants, and animals, including knowledge of and competency in:

- explaining the factors that affect the distribution and characteristics of ecosystems;
- explaining the importance of ecosystems in understanding the environment; and
- analyzing the diversity and productivity of ecosystems.

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12 Competencies
	STANDARD 4: STUDENTS UNDERSTAND HOW ECONOMIC, POLITICAL, CULTURAL, AND SOCIAL PROCESSES INTERACT TO SHAPE PATTERNS OF HUMAN POPULATIONS, INTERDEPENDENCE, COOPERATION, AND CONFLICT.
	In order to meet this standard, students will...
None	**4.1** know the characteristics, location, distribution, and migration of human populations, including knowledge of and competency in: • evaluating trends and effects of world population numbers and patterns; and • analyzing the physical and cultural impact of human migration.
R = 1.05, 1.08, 4.01, 4.06, 5.04; None; None	**4.2** know the nature and spatial distribution of cultural patterns, including knowledge of and competency in: • analyzing how cultures shape the character of a region; • describing the processes of cultural diffusion; and • describing the effect of technology on the development and change of cultures.
None	**4.3** know the patterns and networks of economic interdependence, including knowledge of and competency in: • comparing and contrasting the characteristics and distribution of economic systems; • explaining how places of various size function as centers of economic activity; • analyzing factors influencing economic interdependence of countries, including world trade; • analyzing connections among local, regional, and world economies (e.g., transportation routes, movement patterns, and market areas); and • analyzing how and why levels of economic development vary among places.

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***RELATIONSHIPS* STANDARDS**	**COLORADO'S ACADEMIC STANDARDS:** Geography, including Grades 9 - 12 Competencies
None	**4.4** know the processes, patterns, and functions of human settlement, including knowledge of and competency in: • analyzing the size, arrangement, structure, and function of urban areas; • comparing and contrasting the differing characteristics of settlement in developing and developed countries; and • examining how and why large cities grow together.
None	**4.5** know how cooperation and conflict among people influence the division and control of Earth's surface, including knowledge of and competency in: • analyzing why and how cooperation and conflict are involved in shaping the distribution of social, political, and economic spaces on Earth at different scales--local, national, and international; and • analyzing how differing points of view and self-interests play a role in conflict over territory and resources.

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***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12
Competencies

STANDARD 5: STUDENTS UNDERSTAND THE EFFECTS OF INTERACTIONS BETWEEN HUMAN AND PHYSICAL SYSTEMS AND THE CHANGES IN MEANING, USE, DISTRIBUTION, AND IMPORTANCE OF RESOURCES.

In order to meet this standard, students will...

None

5.1 know how human actions modify the physical environment, including knowledge of and competency in:

- analyzing ways humans depend upon, adapt to, and affect the physical environment;
- evaluating ways in which technology has expanded human capacity to modify the physical environment; and
- explaining the possible global effects of human modification of the physical environment.

None

5.2 know how physical systems affect human systems, including knowledge of and competency in:

- comparing and contrasting how changes in the physical environment can increase or diminish its capacity to support human activity;
- identifying and evaluating alternative strategies to respond to constraints placed on human systems by the physical environment (e.g., the use of irrigation in arid environments; and
- analyzing how humans perceive and react to natural hazards.

R = 1.03 - 1.05

5.3 know the changes that can occur in the meaning, use, location, distribution, and importance of resources, including knowledge of and competency in:

- analyzing how the changing distribution of resources affects the patterns of settlement;
- evaluating policies and programs for resource use and management; and
- analyzing the effects of economic activity in modifying and transforming resources.

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COLORADO'S ACADEMIC STANDARDS: Geography, including Grades 9 - 12
Competencies

STANDARD 6: STUDENTS APPLY KNOWLEDGE OF PEOPLE, PLACES, AND ENVIRONMENTS TO UNDERSTAND THE PAST AND PRESENT AND TO PLAN FOR THE FUTURE.

In order to meet this standard, students will...

None

6.1 know how to apply geography to understand the past, including knowledge of and competency in:

- analyzing how changing perceptions of places and environments affect the behavior of people; and
- analyzing the fundamental role that places and environments have played in history (e.g., the Russian winter in the defeat of Napoleon's army).

R = 1.03 - 1.05

6.2 know how to apply geography to understand the present and plan for the future, including knowledge of and competency in:

- evaluating a contemporary issue using geography knowledge, skills, and perspectives; and
- comparing and contrasting how different viewpoints influence the development of policies designed to use and manage Earth's resources.

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***RELATIONSHIPS* STANDARDS**

None

COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 1: STUDENTS UNDERSTAND THE PROCESSES OF SCIENTIFIC INVESTIGATION AND DESIGN, COMMUNICATE ABOUT, AND EVALUATE SUCH INVESTIGATIONS.

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- asking questions and stating hypotheses, using prior scientific knowledge to help guide their development;
- creating and defending a written plan of action for a scientific investigation;
- selecting and using appropriate technologies to gather, process, and analyze data and to report information related to an investigation;
- identifying major sources of error or uncertainty within an investigation (e.g., particular measuring devices and experimental procedures);
- constructing and revising scientific explanations and models, using evidence, logic, and experiments that include identifying and controlling variables;
- communicating and evaluating scientific thinking that leads to particular conclusions;
- recognizing and analyzing alternative explanations and models; and
- explaining the difference between a scientific theory and a scientific hypothesis.

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies

STANDARD 2 [PHYSICAL SCIENCE]: STUDENTS KNOW AND UNDERSTAND COMMON PROPERTIES, FORMS, AND CHANGES IN MATTER AND ENERGY (FOCUS: PHYSICS AND CHEMISTRY).

In order to meet this standard, students will...

None

2.1 know that matter has characteristic properties, which are related to its composition and structure, including knowledge of and competency in:

- examining, describing, measuring, classifying, and predicting common properties of substances (e.g., electrical charge, chemical reactivity, acidity, electrical conductivity, radioactivity, relationships in the periodic table);
- describing and explaining properties and composition of samples of matter using models (e.g., atomic and molecular structure, the periodic table);
- separating substances based on their chemical and physical properties (e.g., color, solubility, chemical reactivity, melting point, boiling point); and
- using word and chemical equations to relate observed changes in matter to its composition and structure.

None

2.2 know that energy appears in different forms, and move (be transferred) and change (be transformed), including knowledge of and competency in:

- identifying, measuring, calculating, and analyzing quantitative relationships involved with energy forms (e.g., heat transfer in a system involving mass, specific heat, and change in temperature of matter); and
- identifying, measuring, calculating, and analyzing qualitative and quantitative relationships associated with energy transfer or transformation (e.g., changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation, voltage, current).

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies
None	2.3 understand that interactions can produce changes in a system, although the total quantities of matter and energy remain unchanged, including knowledge of and competency in: • identifying, describing, and explaining physical and chemical changes involving the conservation of matter and energy (e.g., oscillating pendulum/spring, chemical reactions, nuclear reactions); • observing, measuring, and calculating quantities to demonstrate conservation of matter and energy in chemical changes (e.g., force, work, power); • describing and predicting chemical changes (e.g., combustion, simple chemical reactions), and physical interactions of matter (e.g., velocity, force, work, power), using word or symbolic equations; and • describing and predicting chemical changes (e.g., combustion, simple chemical reactions), and physical interactions of matter (e.g., velocity, force, work, power), using word or symbolic equations; and • describing and explaining physical interactions of matter using conceptual models (e.g., conservation laws of matter and energy, particle model for gaseous behavior).

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12 Competencies

STANDARD 3 [LIFE SCIENCE]: STUDENTS KNOW AND UNDERSTAND THE CHARACTERISTICS AND STRUCTURE OF LIVING THINGS, THE PROCESSES OF LIFE, AND HOW LIVING THINGS INTERACT WITH EACH OTHER AND THEIR ENVIRONMENT (FOCUS: BIOLOGY: ANATOMY, PHYSIOLOGY, BOTANY, ZOOLOGY, ECOLOGY).

In order to meet this standard, students will...

None

3.1 know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and with their environment, including knowledge of and competency in:

- using and producing a variety of classification systems for organisms (e.g., the five-kingdom classification system, classification based on behavior);
- predicting and describing the interactions of populations and ecosystems;
- explaining how adaptations (e.g., structure, behavior) of an organism determine its niche (role) in the environment;
- explaining how changes in an ecosystem can affect biodiversity and how biodiversity contributes to an ecosystem's stability; and
- analyzing the dynamic equilibrium of ecosystems, including interactions among living and non-living components (e.g., tropical deforestation is linked to decreased global precipitation; Mount St. Helen's' eruption had impact on the local ecosystem).

None

3.2 know and understand interrelationships of matter and energy in living systems, including knowledge of and competency in:

- comparing and contrasting the processes of photosynthesis and respiration (e.g., in terms of energy and products);

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- explaining how simple molecules can be built into larger molecules within organisms (e.g., amino acids serve as building blocks of proteins; carbon dioxide and water are the basic materials for building sugars through photosynthesis);
- explaining how large molecules (e.g., starch, protein) are broken down into smaller molecules, serving as an energy source or as basic building blocks in organisms;
- explaining how energy is used in the maintenance, repair, growth, and development of tissues (e.g., in the production of new skin cells requires energy); and
- describing the cycling of matter and the movement and change of energy through the ecosystem (e.g., some energy dissipates as heat as it is transferred through a food web).

None

3.3 know and understand how the human body functions, factors that influence its structures and functions, and how these structures and functions compare with those of other organisms, including knowledge of and competency in:

- describing cellular organelles and their function;
- differentiating among levels of organization and their roles within the whole organism;
- explaining human body function in terms of interacting organ systems composed of specialized structures that maintain or restore health;
- comparing and contrasting characteristics of and treatments for various types of medical problems;
- using examples to explain the relationship of structure and function in organisms; and
- describing the pattern and process of reproduction and development in several organisms.

None

3.4 know and understand how organisms change over time in terms of biological evolution and genetics, including knowledge of and competency in:

- comparing and contrasting the purpose and process of cell division (mitosis) with the production of sex cells (meiosis);

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- giving examples to show how some traits can be inherited while others are due to the interaction of genes and the environment;
- describing how DNA serves as the vehicle for genetic continuity and the source of genetic diversity upon which natural selection can act;
- describing how mutation, natural selection, and reproductive isolation can lead to new to new species and explain the planet's biodiversity;
- explaining why variation within a population improves the chances that the species will survive under new environmental conditions;
- describing the general structure and function of the gene (DNA) and its role in heredity and protein synthesis;
- calculating the probability that an individual will inherit a particular single gene trait.

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 4 [EARTH AND SPACE SCIENCE]: STUDENTS KNOW AND UNDERSTAND THE PROCESSES AND INTERACTIONS OF EARTH'S SYSTEMS AND THE STRUCTURE AND DYNAMICS OF EARTH AND OTHER OBJECTS IN SPACE. (FOCUS: GEOLOGY, METEOROLOGY, ASTRONOMY, OCEANOGRAPHY).

In order to meet this standard, students will...

None

4.1 know and understand the composition of Earth, its history, and the natural processes that shape it, including knowledge of and competency in:

- describing the composition and structure of Earth's interior;
- using the theory of plate tectonics to explain relationships among earthquakes, volcanoes, mid-ocean ridges, and deep-sea trenches;
- using evidence to investigate how Earth has changed or remained constant over short and long periods of time;
- evaluating the feasibility of predicting and controlling natural events; and
- analyzing the costs, benefits, and consequences of natural resource exploration, development, and consumption.

None

4.2 know and understand the general characteristics of the atmosphere and fundamental processes of weather, including knowledge of and competency in:

- analyzing the structure of and changes in the atmosphere, and their significance for life on Earth;
- explaining and analyzing general weather patterns by collecting, plotting, and interpreting data;
- describing how energy transfer within the atmosphere influences weather;

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- investigating and explaining the occurrence and effects of storms on human populations and the environment; and
- describing and explaining factors that may influence weather and climate.

None

4.3 know major sources of water, its uses, importance and cyclic patterns of movement through the environment, including knowledge of and competency in:

- identifying and explaining factors that influence the quality of water needed to sustain life;
- identifying and analyzing the costs, benefits, and consequences of using water resources;
- explaining interactions between water and other Earth systems; and
- explaining interrelationships between the circulation of oceans and weather and climate.

None

4.4 know the structure of the solar system, composition and interactions of objects in the universe, and how space is explored, including knowledge of and competency in:

- explaining the causes of and modeling the varied lengths of days, seasons, and phases of the Moon;
- describing the effect of gravitation on the motions observed in the solar system and beyond;
- describing electromagnetic radiation produced by the Sun and other stars;
- comparing the Sun with other stars; and
- identifying and describing the everyday impact of recent space technology.

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***RELATIONSHIPS* STANDARDS**

TECHNOLOGY,

R = 1.03, 1.04, 1.05

COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 5: STUDENTS KNOW AND UNDERSTAND INTERRELATIONSHIPS AMONG SCIENCE, AND HUMAN ACTIVITY AND HOW THEY CAN AFFECT THE WORLD.

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- analyzing benefits, limitations, costs, and consequences involved in using technology or resources;
- analyzing how the introduction of a new technology has affected or could affect human activity;
- demonstrating the interrelationships between science and technology; and
- explaining the use of technology in an occupation.

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COLORADO'S ACADEMIC STANDARDS: Science, including Grades 9 - 12
Competencies

STANDARD 6: STUDENTS UNDERSTAND THAT SCIENCE INVOLVES A PARTICULAR WAY OF KNOWING AND UNDERSTAND COMMON CONNECTIONS AMONG SCIENTIFIC DISCIPLINES.

I = All

In order to meet this standard, students extend their knowledge. What they are able to do includes...

- evaluating print and visual media for scientific evidence, bias, or opinion;
- explaining that the scientific way of knowing uses a critique and consensus process;
- using graphs, equations, or other models to analyze systems involving change and constancy;
- analyzing and comparing models of cyclic change as used within and among scientific disciplines;
- identifying and predicting cause-effect relationships within a system;
- identifying and describing the dynamics of natural systems;
- identifying and testing a model to analyze systems involving change and constancy;
- explaining an exponential model; and
- refining a hypothesis based on an accumulation of data over time.

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12 Competencies
	STANDARD 1: STUDENTS UNDERSTAND THE CHRONOLOGICAL ORGANIZATION OF HISTORY AND KNOW HOW TO ORGANIZE EVENTS AND PEOPLE INTO MAJOR ERAS TO IDENTIFY AND EXPLAIN HISTORICAL RELATIONSHIPS.
	In order to meet this standard, students will...
None	**1.1** know the general chronological order of events and people in history, including • identifying events and people that characterize each of the major eras in United States and world history.
None	**1.2** use chronology to organize historical events and people, including • reconstructing the time structure and identifying connections found in historical narratives; • using timelines to organize large quantities of historical information, compare different time periods and places, and answer historical questions; and • describing how history can be organized, using various criteria (e.g., thematically, chronologically, geographically) to group people and events.
I = 1.03 - 1.05, 5.01, 5.02, 5.04 R = 5.06, 5.07	**1.3** use chronology to examine and explain historical relationships, including • distinguishing between cause-and-effect relationships and events that happen or occur concurrently or sequentially; • analyzing and explaining cause-and-effect relationships using historical information that is organized chronologically; and • using both chronological order and the duration of events to detect and analyze patterns of historical continuity and change.

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COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12 Competencies

STANDARD 2: STUDENTS KNOW HOW TO USE THE PROCESSES AND RESOURCES OF HISTORICAL INQUIRY.

In order to meet this standard, students will...

I = 1.05, 2.01, 3.04, 3.07, 4.01 - 4.04, 4.06, 4.07, 4.11, 4.12, 5.05, 5.06, 5.10, 5.12 - 5.14

2.1 know how to formulate questions and hypotheses regarding what happened in the past and to obtain and analyze historical data to answer questions and test hypotheses, including

- formulating historical hypotheses from multiple, historically objective perspectives, using multiple sources; and
- gathering, analyzing, and reconciling historical information, including contradictory data, from primary and secondary sources to support or reject hypotheses.

R = 1.05, 3.04, 4.01, 4.07, 5.02, 5.03, 5.06, 5.07, 5.14

2.2 know how to interpret and evaluate primary and secondary sources of historical information, including

- explaining how historical descriptions, arguments, and judgments can reflect the bias of the author and/or the prevailing ideas of the culture and time period;
- interpreting oral traditions and legends as "histories";
- evaluating data within the social, political, and economic context in which it was created, testing its credibility, and evaluating its bias; and
- comparing and contrasting the reliability of information received from multiple sources.

R = All

2.3 apply knowledge of the past to analyze present-day issues and events from multiple, historically objective perspectives, including

- identifying historical contexts of contemporary issues;
- identifying how print and electronic media can affect perspectives regarding historical events; and

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- using historical information to interpret and evaluate decisions or policies regarding contemporary issues.

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STANDARD 3: STUDENTS UNDERSTAND THAT SOCIETIES ARE DIVERSE AND HAVE CHANGED OVER TIME.

In order to meet this standard, students will...

None

3.1 know how various societies were affected by contacts and exchanges among diverse peoples, including

- describing the interactions and contributions of the various peoples and cultures that have lived in or migrated, immigrated, or were brought to the area that is now the United States, including African, European, Latino, and Native American;
- describing and explaining the circumstances under which past and current societies have interacted and changed, resulting in cultural diffusion (e.g., trade, war, exploration, imperialism, social disruptions, improvements in communication, and transportation);
- explaining the reasons for major periods of immigration to the United States and describing how different segments of U.S. society reacted and changed; and
- describing the demographic changes resulting from major migrations in history (e.g., migration of Chinese south; Islamic nomads into northern India; Germanic migrations into the Roman Empire; Bantu migrations south; Amer-Indian migrations into Central America; trans-Pacific migration).

R = All

3.2 understand the history of social organization in various societies, including

- explaining how societies are maintained when individuals see benefits and fulfill obligations of membership;
- analyzing how forces of change have influenced, altered, and maintained social roles and the social organization of societies throughout history;
- explaining how, throughout history, social organization has been related to distributions of privilege and power; and

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- describing how societies have become increasingly complex in responding to the fundamental issues of social organization.

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***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12
Competencies

STANDARD 4: STUDENTS UNDERSTAND HOW SCIENCE, TECHNOLOGY, AND ECONOMIC ACTIVITY HAVE DEVELOPED, CHANGED, AND AFFECTED SOCIETIES THROUGHOUT HISTORY.

In order to meet this standard, students will...

R = 1.03, 1.05, 2.01, 2.03, 3.02, 3.03, 4.01 - 4.04, 4.07 - 4.10, 5.03, 5.05 - 5.14

4.1 understand the impact of scientific and technological developments on individuals and societies, including

- understanding the major technological turning points in history (e.g., agricultural revolution, revolutions in transportation, industrial revolution);
- explaining how the scientific revolution affected how people lived in and viewed the world;
- describing and explaining the social and economic changes that resulted from industrialization; and
- analyzing the impact of rapid developments in areas such as transportation, technology, and telecommunications on individuals and the world today.

R = 4.12

4.2 understand how economic factors have influenced historical events, including

- describing how systems of exchange and other economic developments influenced the growth and history of civilizations;
- explaining how economic changes led to the growth of towns, cities, and eventually, the modern nation-state;
- analyzing the relationship between economic factors and social and political policies throughout United States' history;
- explaining how the rise and expansion of trade have connected and affected the history of regions of the world; and
- describing modern historical developments in economic interdependence (e.g., the emergence of the Pacific Rim, NAFTA, the European Union), and their impact on individuals and societies.

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RELATIONSHIPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12 Competencies
None	**4.3** understand the historical development and know the characteristics of various economic systems, including • explaining the historical development of the economic system of the United States; • analyzing the history of the relationship between economic systems and the role of governments throughout history; • describing characteristics of specific economic systems and how these systems have existed in different ways at different times throughout history (e.g., manorialism, mercantilism, capitalism, socialism, communism); and • tracing the historical factors that led to the transition from local and regional economies to a globally interdependent economy.

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STANDARD 5: STUDENTS UNDERSTAND POLITICAL INSTITUTIONS AND THEORIES THAT HAVE DEVELOPED AND CHANGED OVER TIME.

In order to meet this standard, students will...

R = 1.04, 1.05, 3.01, 3.04, 3.07, 4.03, 4.09, 5.04, 5.06, 5.08, 5.13

5.1 understand how democratic ideas and institutions in the United States have developed, changed, and/or been maintained, including

- identifying and explaining the role of the ideas expressed in the documents that influenced the development of constitutional democracy (e.g., Magna Carta, English Bill of Rights, Mayflower Compact);
- analyzing how the ideas set forth in the Declaration of Independence, Constitution and Bill of Rights, Federalist Papers, and landmark Supreme Court cases affect and operate in the contemporary United States;
- identifying and analyzing how historical events have affected the organization of the political system of the United States (e.g., the American Revolution, the Civil War, the Mexican War, the Populist and Progressive Movements); and
- analyzing how the United States' political system has dealt with various constitutional crises (e.g., the Civil War, Alien-Sedition Acts, assassinations, Watergate).

None

5.2 know how various systems of government have developed and functioned throughout history, including

- comparing and contrasting the characteristics and effects of the various political systems that developed throughout history (e.g., republics, representative and direct democracy, feudalism, centralized monarchy, absolutism, principalities, imperial dynasties, tribal kingdoms);
- comparing and contrasting the political traditions of Western Hemisphere nations;
- describing the characteristics and ideas of various modern political systems, and giving examples of nations that have used them (e.g., democracy, fascism, communism); and

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- explaining how nation-states developed throughout the world and became the dominant form of contemporary political organization.

None

5.3 know how political power has been acquired, maintained, used, and/or lost throughout history, including

- explaining how military conquest and invasion have been used to assume, maintain, and extend political power throughout history;
- analyzing the impact of major revolutions on the realignment of political power throughout the modern world;
- analyzing how genocide has been used to acquire or maintain political power;
- describing how the development, expansion, and collapse of empires throughout history have affected the expansion of political power;
- describing and analyzing the major events in the expansion of the political power of the United States (e.g., the American Revolution, the Louisiana Purchase, the Mexican War);
- analyzing the causes and events of major wars of the contemporary era and the resulting changes in the distribution of political power (e.g., World War I, World War II, War in Vietnam, the Russian Invasion of Afghanistan); and
- giving examples of former colonies and dependent states throughout the world that have gained independence in the 20th century, and explaining how they have addressed the political issues related to independence.

None

5.4 know the history of relationships among different political powers and the development of international relations, including

- describing the characteristics of relationships among political entities in the past (e.g., monarchies, empires, principalities, city-states, federations);
- explaining how the growth of nationalism affected the relationships among political powers;

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- describing the eras of United States' diplomacy from the Revolution through the modern period (e.g., the Monroe Doctrine, the domino theory, detente);
- explaining how the foreign policy of the United States and other nations continues to develop and change; and
- analyzing the development of and issues associated with worldwide movements and organizations such as the League of Nations, the United Nations, and Amnesty International.

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***RELATIONSHIPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: History, including Grades 9 - 12
Competencies

STANDARD 6: STUDENTS KNOW THAT RELIGIOUS AND PHILOSOPHICAL IDEAS HAVE BEEN POWERFUL FORCES THROUGHOUT HISTORY.

In order to meet this standard, students will...

R = 1.02, 1.04 - 1.08, 2.02, 2.03, 3.01, 3.04, 3.05, 3.07, 3.08, 4.01 - 4.06, 4.08, 4.09, 5.01, 5.03, 5.05, 5.06, 5.08, 5.10, 5.12 - 5.14

6.1 know the historical development of religions and philosophies, including

- describing basic tenets of world religions that have acted as major forces throughout history, including but not limited to Buddhism, Christianity, Hinduism, Islam, and Judaism;
- tracing the history of how principal world religions and belief systems developed and spread;
- explaining how, throughout history, conflicts among peoples have arisen because of different ways of knowing and believing; and
- describing basic ideas of various schools of philosophy that have affected societies throughout history (e.g., rationalism, idealism, liberalism, conservatism).

None

6.2 know how societies have been affected by religions and philosophies, including

- giving examples of how religion and philosophical beliefs have influenced various aspects of society throughout history;
- explaining how, throughout history the power of the state has been both derived from religious authority and/or in conflict with religious authority;
- explaining how the focus on individualism and reason expressed in Western philosophy has affected the history of Western culture, including the history of the United States; and
- explaining how the beliefs expressed in Eastern philosophy and religion have affected the history of Eastern cultures.

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R = 1.02, 1.03, 1.05

6.3 know how various forms of expression reflect religious beliefs and philosophical ideas, including

- explaining from an historical context why artistic and literary expression have often resulted in controversy; and
- giving examples of the visual arts, dance, music, theatre, and architecture of the major periods of history and explaining what they indicate about the values and beliefs of various societies.

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RELATIONSHPS STANDARDS	COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies
	STANDARD 1: STUDENTS DEVELOP NUMBER SENSE AND USE NUMBERS AND NUMBER RELATIONSHIPS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.
	In order to meet this standard, students will...
R = 3.06, 4.01, 4.04, 4.12, 5.11	**1.1** construct and interpret number meanings through real-world experiences and the use of hands-on materials;
None	**1.2** represent and use numbers in a variety of equivalent forms (e.g., fractions, decimals, percents, exponents, scientific notation);
None	**1.3** know the structure and properties of the real number system (e.g., primes, factors, multiples, relationships among sets of numbers);
R = 3.06, 4.01, 4.04, 4.12, 5.11	**1.4** use number sense, including estimation and mental arithmetic, to determine the reasonableness of solutions.
	As students extend their knowledge, what they know and are able to do includes
	• demonstrating meaning for real numbers, absolute value, and scientific notation using physical materials and technology on problem-solving situations;
	• developing, testing, and explaining conjectures about properties of number systems and sets of numbers; and
	• using number sense to estimate and justify the reasonableness of solutions to problems involving real numbers.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 2: STUDENTS USE ALGEBRAIC METHODS TO EXPLORE, MODEL, AND DESCRIBE PATTERNS AND FUNCTIONS INVOLVING NUMBERS, SHAPES, DATA, AND GRAPHS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

None	**2.1**	identify, describe, analyze, extend, and create a wide variety of patterns in numbers, shapes, ;
None	**2.2**	describe patterns using mathematical language;
None	**2.3**	solve problems and model real-world situations using patterns and functions;
None	**2.4**	compare and contrast different types of functions; and
None	**2.5**	describe the connections among representations of patterns and functions, including words, tables, graphs, and symbols.

As students extend their knowledge, what they know and are able to do includes

- modeling real-world phenomena (e.g., distance vs. time relationships, compound interest, amortization tables, mortality rates) using functions, equations, inequalities, and matrices;
- representing functional relationships using written explanations, tables, equations, and graphs, and describing the connections among these representations; .
- solving problems involving functional relationships using graphing calculators and/or computers as well as appropriate paper-and-pencil techniques;

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***RELATIONSHPS* STANDARDS**

COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12
Competencies

- analyzing and explaining the behaviors, transformations, and general properties of types of equations and functions (e.g., linear, quadratic, exponential); and
- interpreting algebraic equations and inequalities geometrically and describing geometric relationships algebraically.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 3: STUDENTS USE DATA COLLECTION AND ANALYSIS, STATISTICS, AND PROBABILITY IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

R = 2.03

3.1 solve problems by systematically collecting, organizing, describing, and analyzing data using surveys, tables, charts, and graphs;

R = 2.03, 4.09, 4.11, 4.12 5.08

3.2 make valid inferences, decisions, and arguments based on data analysis; and

None

3.3 use counting techniques, experimental probability, or theoretical probability, as appropriate, to represent and solve problems involving uncertainty.

As students extend their knowledge, what they know and are able to do includes

- designing and conducting a statistical experiment to study a problem, and interpreting and communicating the results using the appropriate technology (e.g., graphing calculators, computer software);
- analyzing statistical claims for erroneous conclusions or distortions;
- fitting curves to scatter plots, using informal methods or appropriate technology, to determine the strength of the relationship between two data sets and to make predictions;
- drawing conclusions about distributions of data based on analysis of statistical summaries;

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- using experimental and theoretical probability to represent and solve problems involving uncertainty (e.g., the chance of playing professional sports if a student is a successful high school athlete); and

- solving real-world problems with informal use of combinations and permutations (e.g., determining the number of possible meals at a restaurant featuring a given number of side dishes).

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STANDARD 4: STUDENTS USE GEOMETRIC CONCEPTS, PROPERTIES, AND RELATIONSHIPS IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

None **4.1** connect various physical objects with their geometric representation;

None **4.2** connect mathematical concepts from across the standards with their geometric representations;

None **4.3** recognize, draw, describe, and analyze geometric shapes in one, two, and three dimensions;

None **4.4** make, investigate, and test conjectures about geometric ideas; and

None **4.5** solve problems and model real-world situations using geometric concepts.

As students extend their knowledge, what they know and are able to do includes

- finding and analyzing relationships among geometric figures using transformations (e.g., reflections, translations, rotations, dilations) in coordinate systems;
- deriving and using methods to measure perimeter, area, and volume of regular and irregular geometric figures;
- making and testing conjectures about geometric shapes and their properties, incorporating technology where appropriate; and

using trigonometric ratios in problem-solving situations (e.g., finding the height of a building from a given point, if the distance to the building and the angle of elevation are known).

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STANDARD 5: STUDENTS USE A VARIETY OF TOOLS AND TECHNIQUES TO MEASURE, APPLY THE RESULTS IN PROBLEM-SOLVING SITUATIONS, AND COMMUNICATE THE REASONING USED IN THESE PROBLEMS.

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In order to meet this standard, students will...

None	**5.1**	understand and apply the attributes of length, capacity, weight, mass, time, temperature, perimeter, area, volume, and angle measurement in problem-solving situations;
None	**5.2**	make and use direct and indirect measurements to describe and compare real-world phenomena;
None	**5.3**	understand the structure and use of systems of measurement;
None	**5.4**	describe and use rates of change (e.g., temperature as it changes throughout the day, or speed as the rate of change of distance over time) and other derived measure; and
None	**5.5**	select appropriate units, including metric and U.S. customary, and tools (e.g., rulers, protractors, compasses, thermometers) to measure to the degree of accuracy required to solve a given problem.

As students extend their knowledge, what they know and are able to do includes

- measuring quantities indirectly using techniques of algebra, geometry, or trigonometry;
- selecting and using appropriate techniques and tools to measure quantities in order to achieve specified degrees of precision, accuracy, and error (or tolerance) of measurements; and
- determining the degree of accuracy of a measurement (e.g., by understanding and using significant digits.

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COLORADO'S ACADEMIC STANDARDS: Mathematics, including Grades 9 - 12 Competencies

STANDARD 6: STUDENTS LINK CONCEPTS AND PROCEDURES AS THEY DEVELOP AND USE COMPUTATIONAL TECHNIQUES, INCLUDING ESTIMATION, MENTAL ARITHMETIC, PAPER-AND-PENCIL, CALCULATORS, AND COMPUTERS, IN PROBLEM-SOLVING SITUATIONS AND COMMUNICATE THE REASONING USED IN SOLVING THESE PROBLEMS.

In order to meet this standard, students will...

R = 3.06, 4.01, 4.04, 4.09, 4.11, 4.12

6.1 model, explain, and use the four basic operations--addition, subtraction, multiplication, and division--in problem-solving situations;

None

6.2 develop, use, and analyze algorithms; and

R = 3.06, 4.01, 4.04, 4.11, 4.12

6.3 select and apply appropriate computational techniques to solve a variety of problems and determine whether the results are reasonable.

As students extend their knowledge, what they know and are able to do includes

- using ratios, proportions, and percents in problem-solving situations;
- selecting and using appropriate methods for computing with real numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods, and determining whether the results are reasonable; and
- describing the limitations of estimation, and assessing the amount of error resulting from estimation within acceptable limits.

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